

## REMARKS/ARGUMENTS

Claims 1-3 and 5 are pending in this application and currently remain rejected under 35 U.S.C. § 103(a) as being unpatentable over Srinivasan (U.S. 5,024,802) in view of a combination of Mandl et al. (Nuclear Engineering and Design 110 (1988) 55-59) and Hunt (U.S. 4,856,344).

With regard to Srinivasan, Applicant readily acknowledges on Page 3 of the application in the last paragraph of the Background of the Invention that the concept claimed in the current application is an improvement on Patent 5,024,802. The latter patent teaches a method for compensating for velocity head effects experienced by the lower tap in high velocity regions by adding compensation during calibration so as to reduce the margin added to the high level trip set point to account for uncertainty in water level. This application takes that concept one step further and recognizes the need to further compensate the differential-type pressure transmitter signal for the pressure-altering effects of the feed water level caused by certain structural restrictions that impact the feed water pressure experienced at the lower tap, such as the middle deck plate pressure delta. On Page 9 of the application starting at line 12, the specification further states:

The method described in U.S. Patent No. 5,024,802 proposed a correction factor to the static pressure measurement at 100% level, to account for the velocity head generated at the lower tap. This invention further reduces the operating margin penalty imposed to compensate for other process variations, such as the middle deck plate,  $\Delta P$ , that are functions of power and feed water level. The middle deck plate  $\Delta P$  variation, i.e., the pressure drop across the middle deck plate introduces a positive error, i.e., the indicated feed water level is higher than the actual level. Part or all of the middle deck plate error can be accounted for during calibration and hence, reduce the uncertainties used in the analysis to determine reactor trips/safeguards actuation setpoints.

When the invention of the 5,024,802 patent was conceived, the impact of the new mid-deck plate  $\Delta P$  was unknown at that time. Combining mid-deck plate  $\Delta P$  and other pressure variations results in a different treatment of these pressure variation terms in the uncertainty calculations which provides the maximum operating margin.

The Examiner asserts that the invention is defined in terms of Jepson claims, which is not the case. The Jepson format clearly sets forth the preamble which dictates the prior art setting of the invention and sets forth the novel features with the phrase "the improvement comprising". Applicant's Claim 1 sets forth a method with the preamble setting forth the structural environment in which the method is operated. There is no admission of what is or is not prior art. However, this disagreement about the claims format should not distract from the fact that Applicant's method is a series of steps that set forth how the feed water level measurement can be calibrated to account for the delta-pressure variation attributed to the structural component. The steps of the method of Applicant's invention is neither described, taught nor shown in Srinivasan.

The Examiner went on to assert that Mandl et al. teach a determination of water inventory in nuclear reactor pressure vessels, under two-phase flow conditions by differential pressure cells and that the delta-pressure measurements have to take into account acceleration and friction components. However, Mandl et al. does not teach how those components can be taken into account within the environment of a steam generator to more accurately measure feed water level.

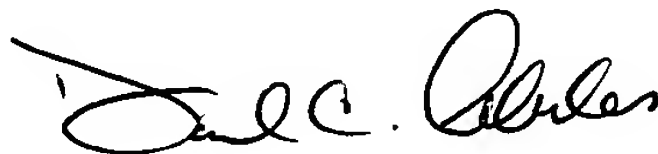
The Examiner went on to assert that Hunt teaches flow measurements in a pipe using differential pressure measurements which take into account corrections for slippage and friction losses. The Examiner concluded that Hunt provides an example of how to apply the teachings of Mandl et al. in cases where velocity and friction losses are not negligible and have to be accounted for in differential pressure measurements. Hunt actually teaches a gradiomanometer that measures the difference in pressure between two points along a pipe to indicate density and hence proportions of two phases of a fluid flowing through the pipe. The reference teaches applying estimated corrections for slippage and friction loss to the calculated values and reiterating the calculations to obtain an improved flow rate value, but it does not describe, teach or show how a feed water level monitor can be calibrated to take into account delta-pressure variations attributable to a structural component within a steam generator. It is respectfully asserted that the same could not reasonable be considered obvious without any teaching in any of the

references of how that can be achieved. As stated in *In re Fritch*, 972 F.2d 1260, 23 USPQ2d 1780 (CAFC 8/11/92):

Obviousness cannot be established by combining the teachings of the prior art to produce the claimed invention, absent some teaching or suggestion supporting the combination . . . the mere fact that the prior art may be modified in the manner suggested by the Examiner does not make the modification obvious unless the prior art suggested the desirability of the modification . . . here the Examiner relied upon hindsight to arrive at the determination of obviousness. It is impermissible to use the claimed invention as an instruction manual or "template" to piece together the teachings of the prior art so that the claimed invention is rendered obvious. This Court has stated that "[o]ne cannot use hindsight reconstruction to pick and choose among isolated disclosures in the prior art to deprecate the claimed invention."

Accordingly, it is respectfully asserted that Applicant's claims patentably distinguish over the references either considered individually or in combination. Enclosed is the Declaration of J. Seenu Srinivasan, the inventor of the subject application, submitted, under 37 CFR § 1.132 to support the foregoing arguments.

Respectfully submitted,



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